

CLAIMS

1. Composite detergent particles prepared by dry-blending:

5 detergent additive particles (a) comprising 30 to 100% by weight of two or more kinds of water-soluble substances, and further optionally comprising less than 10% by weight of a surfactant and/or 70% by weight or less of a water-insoluble substance, the detergent additive particles having an average particle size of from 150 to 600 μm , a bulk density of 300 to 1000 g/L, and wherein the detergent additive particles have a dissolution rate of 90% or more, under
10 conditions where the detergent additive particles are supplied in water at 5°C; stirred for 60 seconds under the stirring conditions that 1 g of the detergent additive particles are supplied to a 1-L beaker (inner diameter: 105 mm) which is charged with 1-L of hard water (71.2 mg CaCO_3/L , a molar ratio of Ca/Mg: 7/3), and stirred with a stirring bar (length: 35 mm, and diameter: 8 mm) at a
15 rotational speed of 800 rpm; and filtered with a standard sieve having a sieve-opening of 74 μm as defined by JIS Z 8801, wherein the dissolution rate of the detergent additive particles is calculated by Equation (1):

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$$\text{Dissolution Rate (\%)} = \{1 - (T/S)\} \times 100 \quad (1)$$

20 wherein S is a weight (g) of the detergent additive particles supplied; and T is a dry weight of insoluble remnants of the detergent additive particles remaining on the sieve when an aqueous solution prepared under the above stirring conditions is filtered with the sieve; and

25 detergent particles (b) having an average particle size of from 150 to 600 μm and a bulk density of 500 to 1000 g/L, and comprising 10 to 50% by weight of a surfactant.

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2. The composite detergent particles according to claim 1, wherein the detergent additive particles (a) have a microporous capacity of 0.2 mL/g or more and 1.2 mL/g or less at 0.01 to 4 μm as determined by mercury porosimetry.

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3. The composite detergent particles according to claim 1 or 2, wherein the detergent additive particles (a) comprise a particle capable of releasing a bubble of a size of 1/10 or more the particle size from an inner portion of the particle, when dissolving the particle in water.

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4. The composite detergent particles according to any one of claims 1 to 3, wherein the detergent additive particles (a) comprise a particle having a structure that there exists a hollow in an inner portion thereof, and that a particle surface is opened and communicated with the hollow in the inner portion.

5. The composite detergent particles according to any one of claims 1 to 4, wherein the detergent additive particles (a) comprise a particle having a localized structure such that a composition in its inner portion is different from that near its surface.

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6. The composite detergent particles according to any one of claims 1 to 5, wherein the detergent additive particles (a) are obtainable by a step of spray-drying an aqueous solution or suspension which comprises a water-soluble substance, and further optionally comprises a surfactant and/or a water-insoluble substance.

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7. The composite detergent particles according to any one of claims 1 to 6, wherein the detergent additive particles (a) comprise a water-soluble polymer as the water-soluble substances.

8. A granular detergent composition comprising 50 to 100% by weight of the composite detergent particles of any one of claims 1 to 7.

9. Detergent additive particles (a) comprising 30 to 100% by weight of two or more kinds of water-soluble substances, and further optionally comprising less than 10% by weight of a surfactant and/or 70% by weight or less of a water-insoluble substance, the detergent additive particles having an average particle size of from 150 to 600 μm , a bulk density of 300 to 1000 g/L, and wherein the detergent additive particles have a dissolution rate of 90% or more, under conditions where the detergent additive particles are supplied in water at 5°C; stirred for 60 seconds under the stirring conditions that 1 g of the detergent additive particles are supplied to a 1-L beaker (inner diameter: 105 mm) which is charged with 1-L of hard water (71.2 mg CaCO_3/L , a molar ratio of Ca/Mg: 7/3), and stirred with a stirring bar (length: 35 mm, and diameter: 8 mm) at a rotational speed of 800 rpm; and filtered with a standard sieve having a sieve-opening of 74 μm as defined by JIS Z 8801, wherein the dissolution rate of the detergent additive particles is calculated by Equation (1):

$$\text{Dissolution Rate (\%)} = \{1 - (T/S)\} \times 100 \quad (1)$$

wherein S is a weight (g) of the detergent additive particles supplied; and

T is a dry weight of insoluble remnants of the detergent additive particles

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remaining on the sieve when an aqueous solution prepared under the above stirring conditions is filtered with the sieve.

10. The detergent additive particles according to claim 9, wherein the
5 detergent additive particles (a) have a microporous capacity of 0.2 mL/g or more and 1.2 mL/g or less at 0.01 to 4 μm as determined by mercury porosimetry.

11. The detergent additive particles according to claim 9 or 10, wherein the
10 detergent additive particles (a) comprise a particle capable of releasing a bubble of a size of 1/10 or more the particle size from an inner portion of the particle, when dissolving the particle in water.

12. The detergent additive particles according to any one of claims 9 to 11,
15 wherein the detergent additive particles (a) comprise a particle having a structure that there exists a hollow in an inner portion thereof, and that a particle surface is opened and communicated with the hollow in the inner portion.

13. The detergent additive particles according to any one of claims 9 to 12,
20 wherein the detergent additive particles (a) comprise a particle having a localized structure such that a composition in its inner portion is different from that near its surface.

14. The detergent additive particles according to any one of claims 9 to 13,
25 wherein the detergent additive particles (a) are obtainable by a step of spray-drying an aqueous solution or suspension which comprises a water-soluble

substance, and further optionally comprises a surfactant and/or a water-insoluble substance.

15. The detergent additive particles according to any one of claims 9 to 14, wherein the detergent additive particles (a) comprise a water-soluble polymer as the water-soluble substances.

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